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APPLIED FORESTRY NOTES

NORTHERN ROCKY MOUNTAIN
FOREST AND RANGE EXPERIMENT STATION
AND
COOPERATING AGENCIES *

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ROCKY MOUNTAIN STATION

REGRASSING MONTANA DRY FARMS

By Leon C. Hurtt
Senior Range Examiner.

Several million acres of splendid native range in eastern Montana were unwisely put to the plow during the dry farming boom before the 1919 and subsequent drought years halted the destruction and started an exodus of dry farmers. Regrassing of such land that now produces little but weeds after five to ten, or even twenty, years since the last crop trial is a major rehabilitation job. Grass will not only yield taxes and produce wealth, but will help to keep top soil in place rather than to form dust clouds and silt up irrigation projects.

Reseeding Plans and Methods

With an allotment of Federal emergency funds made to the Northern Rocky Mountain Forest and Range Experiment Station in September, 1933, a range reseeding program combining research and demonstration was set up with the following questions in mind:

1. Can reseeding methods be developed that will be cheap enough for use on low-valued range land?

2. What native or introduced range plants are most promising under this limitation?

3. Which is preferable, fall or spring seeding?

4. What is the relative grazing value of each species for different classes of livestock?

Certain detailed phases of the reseeding work are being conducted in a grass nursery at Missoula, on several National Forests, and at the U. S. Range Livestock Experiment Station (old Fort Keogh) near Miles City, where controlled experiments and careful records can be obtained. However, the need for demonstrations under practical ranch operating conditions was recognized. More than 40 selected ranchers have entered into five-year cooperative agreements and have done most or all of the actual reseeding work on five to forty acres of their own land. Supervision and seed are furnished by the Forest Service. So far, 22 central and southern Montana counties from Granite on the west to Custer on the east are represented by one to four cooperators, including some 4H Club boys. Funds allotted for this work are now exhausted, which has necessitated rejection of numerous requests for cooperation.

Previous work by other experiment stations has demonstrated that some of the forage species being investigated can be grown in Montana under the best tillage practice. Efforts are therefore directed primarily toward developing methods that will hasten nature's slow progress at regrassing range land at a cost that will pay dividends. For the sake of comparisons, soil on a portion of certain demonstration fields was prepared by disking or plowing and the remainder of the field was drilled without soil preparation. With minor exceptions, however, an ordinary grain drill has been used to reseed, without soil preparation, fields that have been uncultivated for two, three or more years. Burning of dead weeds that seriously interfered with the drill was necessary on a few fields. This absence of soil preparation, in addition to being economical, has the further advantage of preserving most of the valuable native forage plants that may have become established since the soil was last cropped. Varying numbers of the drill feeds have been blocked to give rows 12 to 30 inches apart, and in a few cases unseeded strips 20 and 30 feet wide with one drill width seeded between have been tried. Transplanting small blocks of buffalo grass sod with various spacing has also been tried.

Results for the First 18 Months

Approximately 1,100 acres have been seeded since October, 1933. About 425 acres were seeded in the fall of 1934 and 450 acres in April and May, 1935. Recent incomplete reports and inspections indicate a high degree of success for this 875 acres, but final results for work done during the past eight months will not be available before October.

The remaining 225 acres, seeded in the fall of 1933 or in the spring of 1934, suffered one of the worst droughts

ever recorded for eastern Montana. Precipitation at Miles City during 1934 amounted to only 5.51 inches, or 40% of normal, while at Ingomar in Rosebud County less than five inches occurred. A check-up in the fall of 1934 on this 225 acres showed a reasonable degree of success under range reseeding standards on at least 70 acres, or more than 32% of the total. Failure in some cases was clearly due to late spring seeding or to covering seed too deep. A recent partial check-up showed a fair degree of success on some of the remaining 155 acres that were classed as complete failures last fall. Some seed that laid dormant in the ground for six to twelve months germinated and came up after the rains of last October, and now promise fair stands. Furthermore, some of the grass that came up in April, 1934, appeared to be quite dead during the drought through July and August, but revived after fall rains and now promises a fair stand. Present indications point to final success on at least 40 percent of the acreage planted late in 1933 or in the spring of 1934.

Promising Species

Crested wheat grass, a perennial introduced from Siberia, appears to be the most promising for range reseeding under drought conditions that prevailed through 1934. It starts growth early in the spring, revives quickly after fall rains, is a prolific seed producer and seems able to choke out Russian thistles, cheat, or annual brome grass. This species has been used on about 75 percent of the total acreage, but 19 other species were used to some extent.

Slender wheat grass, a native of Montana, smooth or Hungarian brome, meadow fescue, Canada blue grass, tall oat grass, and Harbin lespedeza also give considerable promise. Lespedeza is a legume, introduced in recent years from the dry, cold portion of Manchuria, but as yet is scarecely known in Montana. It is an annual, but it has proved its ability to reseed itself in our Missoula grass nursery.

The price of crested wheat grass seed has gone up during the past two years from about 20 to 75 cents per pound. The latter price is a serious obstacle to its extensive use. Three to four pounds of crested wheat grass, or eight to ten pounds of the other grass seed per acre, appear to be adequate for range reseeding in the semi-arid plains. With the former at 20 cents per pound and others at ten cents or less per pound, reseeding may still be done under the foregoing methods at a cash outlay of about $1 per acre, plus relatively low labor costs. Drilling labor with owned equipment should not cost to exceed an additional 30 to 50 cents per acre.

Twenty yearling steers were started recently on an experiment to determine the range value of crested wheat grass

as compared to native pastures, but results will not be available from this test for some time.

A preliminary conclusion from the work so far is that a very great acreage of plowed and abandoned Montana range land can be reseeded at a cost that will be justified by increased carrying capacity and by reduced wind and water erosion.